

Applicant: Takao Tsuruoka
Application No.: 10/646,637

REMARKS/ARGUMENTS

The present application contains claims 1-30. Claims 1 and 27 have been amended and claims 28-30 have been newly added. No new matter has been added.

Claims 8-10, 14, 20, 21, 22 and 26 remain withdrawn as being directed to a non-elected invention.

Telephonic Interview

Applicant thanks the Examiner for the courtesy of granting a telephone telephonic interview conducted February 20, 2009 and February 23, 2009.

Drawings/Priority Claim

It is noted that the drawings have been accepted and that the convention priority claim has been acknowledged.

Specification

Applicant thanks the Examiner for accepting the substitute specification.

Restriction/Election

Making reference to the Restriction Requirement of the Office Action dated September 26, 2007, claims 1-7, 11-13, 15-19, 23-25 and 27 have been examined on the merits.

Allowable Subject Matter

The Examiner is thanked for indicating that claims 6, 11-13, 18 and 23-25 will be allowed if rewritten to include the limitations of their main claim and any intervening claims.

Claim Rejections - 35 U.S.C. §102

The rejection of claims 1-4, and 15, 16 and 27 under 35 U.S.C. §102(b) as anticipated by Massimo Mancuso et al. (U.S. Patent No. 6,256,414) (hereinafter, "Mancuso et al.") is respectfully traversed.

The Examiner, referring to claims 1 and 27, states that Mancuso et al. disclose, as shown in Figs. 1 and 2, an image pickup system comprising noise estimator 245 for estimating an amount of noise in a digitized signal from image pickup element 120; a shooting condition estimator 230, 235 and 240 for estimating a shooting condition when an image based on the signal is acquired, the Examiner making reference to column 4, lines 11-31; a correction unit 250 for correcting the amount of noise estimated by the noise estimator 245 based on the shooting condition estimated by the shooting condition estimator, the Examiner making reference to column 4, lines 32-53; and noise reducing unit 255 for reducing the noise in the signal based on the amount of noise corrected by the correction unit, the Examiner making reference to column 4, lines 54-58.

Although Mancuso et al. admittedly teaches a noise estimator 245, it is submitted that the apparatus which the Examiner alleges is the shooting condition estimator is clearly different from that disclosed in the present application. The exposure correction circuit 235 is described in column 4, lines 11-31 as a calculation unit 230 which produces a histogram of the frequency distribution of the image, an exposure correction unit 235 and white balancing unit 240.

To the contrary, the present application teaches a shooting situation estimator which estimates a shooting situation such as "scenery shooting scene," "portrait shooting scene," "close up shooting scene" or the like **totally independent** of the image obtained. This description is set forth in paragraphs [0066-0076] in

the specification of the present application. It should further be noted that the present application teaches a **separate** and **independent** white balance circuit 12 as shown in Fig. 1 and further as described in the specification at paragraph [0048], page 8 of the specification. The text at column 4, lines 11-21 of Mancuso et al. recites that the exposure problems which are corrected are limited to back lighting or excessive front lighting as well as correcting the color shift of the light towards red or towards blue dependent on color temperature of the light source, as recited in column 4, lines 24-27 of Mancuso et al.

Thus, calculation unit 230, automatic exposure correction unit 235 and white balancing unit 240 of Mancuso et al. are **directly responsive to the image** signal and correct the image signal based on the histogram or the color temperature of the light source and further have a direct effect upon the image. Note, Fig. 2 of Mancuso et al. which the output of one of the CCD 120 and the decompression unit 130 is **directly inputted** to units 230 and 235 and signal 120 (or 130) is inputted to the white balance circuit 240 after undergoing exposure correction at circuit 235. Thus, units 235 and 240 **directly affect the image**.

To the contrary, the present invention provides a shooting situation estimator which is independent of and is not in any way affected by the image provided from the CCD 120 or the decompression unit 130. Note the shooting conditions estimator 16 shown in Fig. 1 as well as Fig. 3.

It is therefore submitted that Mancuso et al. neither disclose nor suggest a "shooting condition estimator for estimating a shooting condition when an image based on said signal (the digitized signal from an image pickup element) is acquired without directly affecting the image based on said signal." This limitation recited in claim 1 finds support in Figs. 1 and 3 as well as the text from page 14, line 12 to page 16, line 4 of the specification as-filed.

The noise reduction unit 250 of Mancuso et al. functions to dynamically reduce the effects of noise introduced by the light sensor depending on the noise level estimated by the noise level estimation unit 245 and based on the spatial characteristic of the image, the amount of noise of the light sensor being evenly reduced, which is clearly different from the present invention wherein the noise correction unit 18, shown in Figs. 1 and 3 of the present application, estimates the amount of noise based on the estimating unit 16 which, as recited above, is independent of the digital signal of the image provided by the CDS 7, shown in Fig. 1 of the present application.

It is submitted that unit 255 shown in Fig. 2 of Mancuso et al., identified as a "noise reducing unit for reducing the noise in the signal based on the amount of noise corrected by the correction unit," is **not** a noise reducing unit, but is a color-tone correction unit which corrects alterations of one or more color categories without altering the other colors of the image, examples of the color-tone correction being improvement of the quality of representation of skin color tone in a portrait, the sky and the grass in a landscape. To the contrary, the noise reducing unit recited in claim 1 reduces noise in the signal based on the amount of noise corrected by the correction unit 18. See the shooting condition estimator 16, correction unit 18 and noise reducing unit 19 shown in at least one of Figs. 1 and 3.

Thus, for all of the above reasons, it is submitted that claim 1 patentably distinguishes over Mancuso et al. As noted by the Examiner, claim 27, recites limitations substantially the same as those are recited in claim 1 and it is submitted that claim 27 patentably distinguishes over Mancuso et al. for the same reasons set forth above regarding claim 1. The amendment to claim 27 likewise finds support in Figs. 1 and 3, as well as the text found at page 14, line 12 and page 16, line 4 of the specification as filed.

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Claims 2-4, 15 and 16 all depend from claim 1 and carry all of its limitations and hence are deemed to patentably distinguish over Mancuso et al. for the same reasons as are set forth above regarding claim 1.

Claims 7 and 19 have been rejected under 35 U.S.C. §103(a) as unpatentable over Mancuso et al. This rejection is respectfully traversed.

It should be noted that claims 7 and 19 depend from claim 1 or from a claim which depends from claim 1 and hence are deemed to patentably distinguish over Mancuso et al. taken alone for the same reasons set forth above. Regarding claim 7, the limitations set forth therein recite the shooting condition estimator in greater detail and, since the shooting condition estimator recited in claim 1 clearly distinguishes over Mancuso et al., it is submitted that the more detailed description of claims 7 and 19 likewise distinguishes thereover. In addition, even assuming for the sake of argument, the concepts and advantages of determining whether the shooting conditions of night use shooting are well known and expected in the art, the novel features of the shooting condition estimator set forth above are lacking in Mancuso et al. The combination of Official Notice with Mancuso et al. lacks the features lacking in Mancuso et al. regarding the independent nature of the shooting condition estimator recited in claim 1.

Claim 19 recites limitations substantially similar to those recited in claim 7 and it is submitted that claim 19 patentably distinguishes over Mancuso et al. taken with Official Notice.

Regarding allowable claims 6, 11-13, 18 and 23-25, it is submitted that the need for amending these claims is not necessary in view of the fact that their base claims, as well as any intervening claims, are submitted to patentably distinguish over the cited art of record.

Regarding new claim 28, the image pickup system of the new claim 28

calculates coefficients A, B, C and D of the function equation (4), see paragraph [0087], page 17, equation (5), see paragraph [0092], page 18 of the specification and equation (6) see paragraph [0098], page 19 as a function that uses, as a variable, a parameter related to information independent of the signal level, such as a temperature T of the image pickup element, a gain G for the signal, and a shutter speed S during shooting, and estimates a target amount of noise N using the aforesaid function equations (4),(5) and (6) specified by the calculated coefficients A, B, C and D.

The image pickup system as set forth in claim 28 calculates the coefficient of the function equation for estimating the amount of noise N, as a dynamic function that uses, as variables, a parameter related to information **independent** of the signal level. See Fig. 5, elements 46-48.

However, Mancuso et al. neither disclose nor even remotely suggest "calculating a coefficient of the function equation for estimating the amount of noise N, as a function that uses, as a variable, a parameter related to information provided independently of the signal level," which is recited in new claim 28.

Support for claim 28 is found at page 18, paragraph [0092] to page 20, paragraph [0103].

New claims 29-30 depend from claim 28 and are submitted to be patentable over Mancuso et al.

On a further note, a Japanese patent application (Application No. 2002-242400, Publication No. 2004-88149), corresponding to and having the same claims as the present U.S. Patent Application No. 10/646,637, was allowed for novelty and non-obviousness and granted a patent (Japanese Patent No. 3,762,725).

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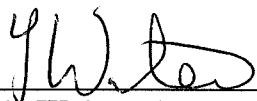
Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicant respectfully submits that the present application, including claims 1-7, 11-13, 15-19, 23-25 and 27-30, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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LW/hg
Enclosures